

EXHIBIT D

Figure 1A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 1

		CDR 1					CDR 2				
		1	10	20	30	40	50	60	70	71	
heavy chain seq ID 1	(1)	EVQLLEQSGAEVRKPGSSVKVSC	KASGGT	TFSGHVTITWVRQAPGQGLEWMGES	IFPGS	ANYAQN	YAK	GRD			
CBH-4B	(1)	---ITVQSGAEVRKPGSSVKVSC	KASGGG	TFGTITWVRQAPGQGLEWMGGIVP	---	LFDRPN	YAK	RFQD			
CBH-4D	(1)	--QVQVQSGAEVRKPGSSVKVSC	KASGGP	FN---YSWVRQAPGQGLEWMGGII	---	FDREN	YAK	RFQD			
CBH-4G	(1)	--QVQVQSGAEVRKPGSSVKVSC	KASGGT	FSN---SASWVRQAPGQGLEWMGITP	---	IFATTY	YAK	RLQG			
CBH-5	(1)	--QVQVQSGAEVRKPGSSVKVSC	KATGGK	FSN---FISWVRQVPGQGLEWMGGVVF	---	VFGGGS	YAK	RFQD			
CBH-7	(1)	--QVQVQSGAEVRKPGS	-SVISCKS	-GGTFNNYALSWVRQAPGQGLDWMGETTE	---	FGTEKY	YAK	RFQD			
CBH-8C	(1)	--QVQLOESGFLVKPSETLSLTCTV	SGSSIS	---FFWWRQPGKGLEWMIGYMS	---	DTGNTN	SSLRT				
CBH-8E	(1)	--QVQVQSGAEVRKPGSSVKVSC	KASGGT	FN---YSWVRQAPGQGLEWMGGFIP	---	IFTINY	YAK	RFQD			
CBH-11	(1)	--QVQVQSGAEVRKPGSSVKVSC	KASGGN	LN---TYSWVRQAPGQGLEWMG	-IIP	---	FLAKS	---	QFQD		
CBH-17C	(1)	--EVQVEGGAVQ	---	GGSLKVS	CAASG	PFVSGS	ATHWVRQAP	-KGLD	WVGIRSS	---	SHNYATEXPVSVRG
Consensus	(1)	EVQLLEQSGAEVRKPGSSVKVSC	KASGGT	TFSGHVTITWVRQAPGQGLEWMGES	IFPGS	ANYAQN	YAK	GRD			

		CDR 3									
		72	80	90	100	110	120	130	140	150	
heavy chain seq ID 1	(72)	PVSTILADESTSTSFTELSNLRSD	DTAVYYC	ARD	PPR	---	YCSAGRCY	PGFFQ	QWGG	QGLVTVSS	
CBH-4B	(55)	RVATADES	-TSTAYMELSSLR	FDIT	---	AYCARE	ADI	---	VVGGSS	YFDS	
CBH-4D	(61)	RVITMTADESTNTHYMESGLRSE	CTA	-VYYC	ARDSG	DFGAVI	IGNH	YHYG	MDV	---	
CBH-4G	(64)	RVTTTADETS	-TAYMELSSLSQDDTAIYY	CKATG	QG	---	LELHGS	YHYG	MDV	---	
CBH-5	(66)	RLITADDSR	---	SYMLSGR	DDTAIYYC	ARPHGD	---	SS	---	GIYRRPLDY	
CBH-7	(64)	RVTTTADDSN	---	LMDSSLR	SEDS	---	AYCARG	---	YTYGS	FFDY	
CBH-8C	(61)	RVITDTSKQFS	---	LKNSV	TAADTAIYYC	ARG	---	LIAAR	LLDYW	---	
CBH-8E	(64)	RLITTTADS	-TSTGYMELSSLR	SEDT	-AYYC	ARCWLG	---	SCRGG	SCYS	AFDI	
CBH-11	(60)	RVITADKSTGD	---	Y	-MSSLK	SDDTAVYYC	ARVPGS	---	GT	-YAYFDY	
CBH-17C	(63)	RPTISRDDSR	-TAYLQ	MNSRTEDTALYCI	IPSGLVG	---	QLGH	AFEF	---		
Consensus	(72)	PVSTILADESTSTSFTELSNLRSD	DTAVYYC	ARD	PPR		YCSAGRCY	PGFFQ	QWGG	QGLVTVSS	

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 1B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 1

CDR 1	
(1)	1 8
HCV heavy seq ID 1 CDR 1(1)	---GHVTI
CBH 4B heavy CDR 1(1)	---TYGII
CBH 4D heavy CDR 1(1)	----YS--
CBH 4G heavy CDR 1(1)	NSAS----
CBH 5 heavy CDR 1(1)	NFIS----
CBH 7 heavy CDR 1(1)	---NYALS
CBH 8C heavy CDR 1(1)	---SFFW-
CBH 8E heavy CDR 1(1)	---SQFTI
CBH 11 heavy CDR 1(1)	---IYS--
CBH 17 heavy CDR 1(1)	GSATH---
Consensus (1)	GHVTI

CDR 2	
(1)	1 10 21
HCV heavy seq ID 1 CDR2	(1) ESIFIFGSANYACNYACKFERL
CBH 4B heavy CDR 2	(1) GIVELFDRFNIAKFKCT----
CBH 4D heavy CDR 2	(1) --GLIFDRENIAKFKCG----
CBH 4G heavy CDR 2	(1) -IIFIFATTIYAQRLQG----
CBH 5 heavy CDR 2	(1) GVVEFVEGGGSYFCKFCG----
CBH 7 heavy CDR 2	(1) -ETIFPGIEKYAKFKCG----
CBH 8C heavy CDR 2	(1) -YMSLTIGNINSSSLKT-----
CBH 8E heavy CDR 2	(1) --FIFIFTINIAKFKCG----
CBH 11 heavy CDR 2	(1) -IIFFTIAKSCFCG-----
CBH 17C heavy CDR 2	(1) ---IRSSSHNYATEYFVSVRG
Consensus	(1) ESIFIFGSANYACNYACKFERL

CDR 3	
(1)	1 10 21
HCV heavy seq ID 1 CDR 3	(1) ---DFFRYCSAGRCYEGFFQC
CBH 4B heavy CDR3	(1) ----EADIVVGGSSYFCS---
CBH 4D heavy CDR 3	(1) ESGLEFGAVIIGNHYYGMLV-
CBH 4G heavy CDR 3	(1) -ATGCGIELHGSYYYVAMLV-
CBH 5 heavy CDR 3	(1) -FHGLSSGIYRRFLDY-----
CBH 7 heavy CDR 3	(1) -----RGYIYGSEFDY-----
CBH 8C heavy CDR 3	(1) -----GLIAARLLDYW-----
CBH 8E heavy CDR 3	(1) ---DWLGSCRGSCYSAFDI-
CBH 11 heavy CDR 3	(1) -----VPGSGTYAYFDY-
CBH 17C heavy CDR 3	(1) -----PSGLVGQLGHAFEP--
Consensus	(1) DFFRYCSAGRCYEGFFQC

Figure 2A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 2

		CDR 1										CDR 2									
	(X)	1	20	30	40	50	60	70	80	90	100	110	120	130	140						
heavy chain seq ID 2	(1)	EVQLLEQSGAEVKKFGSSSVKVSQCVFGDTFSRYTLCQLRCAPGQGFEMGNILFVYNTIP	NYAQRKFGRLSTIAD																		
CBH-4B	(1)	---IIVCQSGAEVKKFGSSSVKVSCKASGGSFGITWVRCAFGQGLEWVGIVELFLRE	NYAQRKFGRLV-AIAD																		
CBH-4D	(1)	---CVCVCQSGAEVKKFGSSSVKVSCKASGGFEN	---YSWVRCAFGQGLEWVGII-FLRE	NYAQRKFGRLVIMIAD																	
CBH-4G	(1)	---CVCVCQSGAEVKKFGSSSVKVSCKASGGTFEN	---SASWVRCAFGQGLEWVG-ILFIFATI	---YYAQRKFGRLVITAD																	
CBH-5	(1)	---CVCVCQSGAEVKKFGSSSVKVSCKATGGKFSN	---FLSWVRCAFGQGLEWVGIVVVFVG	---GSYPCKFGRLITAD																	
CBH-7	(1)	---CVCVCQSGAEVKKFGS-SVLSCKS	---GGTFNNYALSWVRCAFGQGLEWVGII	---EFGIE	---KYAQRKFGRLVITAD																
CBH-8C	(1)	---CVCVCQSGFLVKFSEILSLTCTVSGGSISS	---FFWVIRCFGRGLEWVGIVMSLTGMIN	---SSLRIRVITISK																	
CBH-8E	(1)	---CVCVCQSGAEVKKFGSSSVKVSCKASGGTFEN	---SCFTTWVRCAFGQGLEWVG-FIPIFI	---NYAQRKFGRL-TITA																	
CBH-11	(1)	---CVCVCQSGAEVKKFGSSSVKVSCKASGGNIN	---IYSWVRCAFGQGLEWVG-ILFFIAK	---S---	---CFQGRVITAD																
CBH-17C	(1)	---EVQVEGGAVC---	---GGSILKVSAAAGFVFGSATHWVRCAF	---KGLDWVGRSSSHNYATEYFVSVRGRFTISR																	
Consensus	(1)	EVQLLEQSGAEVKKFGSSSVKVSQCVFGDTFSRYTLCQLRCAPGQGFEMGNILFVYNTIP	NYAQRKFGRLSTIAD																		

		CDR 3									
	(76)	76	90	100	110	128					
heavy chain seq ID 2	(75)	DSTSTAYMELSSLRSED	TAVYFCARVVIPNAIRHMGYFDYWGQGLVTVSS								
CBH-4B	(71)	ESTSTAYMELSSLRFD	TAYCAREADIVVGS	---SYFDS							
CBH-4D	(68)	ESTINH-YMESGLRSED	TAVYFCARDSGDFGA	---VLIGNHYHYGMDV	---						
CBH-4G	(71)	ETS-TAYMELSSLQSD	TATYCKAT-G	---QGLELHGSYYYVAMDV	---						
CBH-5	(72)	DSR-----	SYMLSGRUDTAYYCAREPHGD	SS-GIYRPLDY	---						
CBH-7	(71)	ESN---	LMDSLRSEDS	---AYCARG	---YTYGSPFDY						
CBH-8C	(68)	QFS---	LRNSVTAADTAVYFCARG	---	---LIAARLLDYW						
CBH-8E	(70)	DSTSTAYMELSSLRSED	TAVYFCARDWLGSCRG	---SCYSAFDI	---						
CBH-11	(66)	KSTGD---	YMSLKSULTAVYFCARVPGS	GT-YAYFDY	---						
CBH-17C	(70)	DSR--TAYLQ	INSRTEDTALYCIIPS	---	---GLVGQLGHAFEF						
Consensus	(76)	DSTSTAYMELSSLRSED	TAVYFCARVVIPNAIRHMGYFDYWGQGLVTVSS								

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 2B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 2

CDR 1

	(1)	<u>1</u>	<u>8</u>
HCV heavy seq ID 2 CDR 1 (1)	---	RYTIQ	
CBH 4B heavy CDR 1 (1)	---	TYGIT	
CBH 4D heavy CDR 1 (1)	----	YS--	
CBH 4G heavy CDR 1 (1)	NSAS----		
CBH 5 heavy CDR 1 (1)	NFIS----		
CBH 7 heavy CDR 1 (1)	NYALS---		
CBH 8C heavy CDR 1 (1)	-SFFW---		
CBH 8E heavy CDR 1 (1)	----SQPII		
CBH 11 heavy CDR 1 (1)	----IYS--		
CBH 17 heavy CDR 1 (1)	GSATH---		
Consensus (1)		RYTIQ	

CDR 2

	(1)	<u>1</u>	<u>10</u>	<u>21</u>
HCV heavy seq ID 2 CDR 2	(1)	NIIFVYNIENYACKFQG	----	
CBH 4B heavy CDR 2	(1)	GIVELFLRENYACKFCT	----	
CBH 4D heavy CDR 2	(1)	--GIIFLRENYACKFQG	----	
CBH 4G heavy CDR 2	(1)	-IIFIFATTIYVACRLQG	----	
CBH 5 heavy CDR 2	(1)	GVVFVFGGGSYPCKFQG	----	
CBH 7 heavy CDR 2	(1)	-ETIFFGTIEKYACKFQG	----	
CBH 8C heavy CDR 2	(1)	-YMSLTIGNINSSSLRT	-----	
CBH 8E heavy CDR 2	(1)	--FIFIFTINIAKFKQG	----	
CBH 11 heavy CDR 2	(1)	-LIFFIARSCFQG	-----	
CBH 17C heavy CDR 2	(1)	----IRSSSHNYATEYFVSVRG		
Consensus (1)		NIIFVYNIENYACKFQG		

CDR 3

	(1)	<u>1</u>	<u>10</u>	<u>21</u>
HCV heavy seq ID 2 CDR 3	(1)	---VVIENAIRHTMGYYFLY-		
CBH 4B heavy CDR3	(1)	---EALIVVGGSS---SYFLS-		
CBH 4D heavy CDR 3	(1)	LSGLFGAVITIGNHYYYGMIV-		
CBH 4G heavy CDR 3	(1)	-ATGCGTIELHGSYYYYAMIV-		
CBH 5 heavy CDR 3	(1)	-----PHGLSSGTIYRFLLY-		
CBH 7 heavy CDR 3	(1)	-----RGYIYGSFFLY-		
CBH 8C heavy CDR 3	(1)	-----GLIAARLLDYW		
CBH 8E heavy CDR 3	(1)	---DWLGSCRGGSCYSAFLI-		
CBH 11 heavy CDR 3	(1)	-----VFGSGTYAYFLY-		
CBH 17C heavy CDR 3	(1)	-----FSGLVGQLGHAFEP--		
Consensus (1)		VVIENAIRHTMGYYFLY		

Figure 3A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 3

		CDR 1					CDR 2	
	(1)	1	10	20	30	40	50	68
heavy chain seq ID 3	(1)	EVCLLEQSGAEVRKFGSSVVKVSCASGGTIFSGHVISWVRCAFGQGLEWMGGS						TSFPGTNSNAQKFGQ
CBH-4B	(1)	---ILVCSGAEVRKFGSSVVKVSCASGGTIFSGHVISWVRCAFGQGLEWMGGI						VELFLRENYACKFGQ
CBH-4D	(1)	---CVCVCSGAEVRKFGSSVVKVSCASGGFFN---YSWVRCAFGQGLEWMG-G-II-FLRENYACKFGQ						
CBH-4G	(1)	CVCVCSGAEVRKFGSSVVKVSCASGGTIFSN---SASWVCAFGQGLEWMG-I-I-IFLFIATYYACRLQG						
CBH-5	(1)	CVCVCSGAEVRKFGSSVVKVSCATGKGFEN-FISWVRCAFGQGLEWMGGV						VEVFGGSSYPCKFGQ
CBH-7	(1)	CVCVCSGAEVRKFGS-SVLSCKS-GGTFNNYALSWVRCAFGQGLEWMG-E-I-IFLFIATYYACKFGQ						
CBH-8C	(1)	---CVCVCSGAEVRKFGSEITLSLITIVSGSISSS---FFWVLRCPGKGLGWMIG---YMSLTGINSLSLRT						
CBH-8E	(1)	---CVCVCSGAEVRKFGSSVVKVSCASGGTIFSNCFITWVRCAFGQGLEWMG---FIFLIFTINYACKFGQ						
CBH-11	(1)	CVCVCSGAEVRKFGSSVVKVSCASGGNIN---IYSWVRCAFGQGLEWMG-I-I-EFTAKS----CFQG						
CBH-17C	(1)	---EVQVEGGRV---GGSLKVSCAASCFVFGSALSWVRCAE-KLLDWVGRSSSHNYATEYFVSVRG						
Consensus	(1)	EVCLLEQSGAEVRKFGSSVVKVSCASGGTIFSGHVISWVRCAFGQGLEWMGGS						ISFPGTNSNAQKFGQ

		CDR 3									
	(69)	69	80	90	100	110	120	132			
heavy chain seq ID 3	(68)	RVSITADESASTAYMELSSLRSEDTATYYCAKDPFR	FCSGGNCYPGFFQNGQGTLVTVSS								
CBH-4B	(65)	RVATADES-TSTAYMELSSLRFDIT--AYCAREADI	VVGSSSYFDS								
CBH-4D	(61)	RVTMTADESINTHYMESGLRSEDTA-VYYCARDSGDFGAVTIIGNHYYYGMIV									
CBH-4G	(64)	RVTITADETS-TAYMELSSLRSDITATYYCAKATGQG--LELHGSYYYVAMDV									
CBH-5	(66)	RLITADDSR-----SYMLSGRDTTAYYCARPHGD--S--SGIYRRELDY									
CBH-7	(64)	RVTITADESN---LMDSSLRSEDS--AYCARG--YTYGSPFDY									
CBH-8C	(61)	RVIDISKQFS-----LKNSVTAALTAIVVYCARG-----LIAARLLIYW									
CBH-8E	(64)	RLITITADS-TSTGYMELSSLRSEDT-AYYCARDWLG--SCRGSSCYSAFDI									
CBH-11	(60)	RVTITADKSTGD---YMSSLRSDITAVVYCARVFGS---G--TYAYFDY									
CBH-17C	(63)	RFTISRDDSR-TAYLQMSRTEDTALYCLIPSGLVG-----QLGHAFEF									
Consensus	(69)	RVSITADESASTAYMELSSLRSEDTATYYCAKDPFR	FCSGGNCYPGFFQNGQGTLVTVSS								

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 3B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 3

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                                CDR 1
                                (1) 1      8
HCV heavy seq ID 3 CDR 1(1) GHVIS---
CBH 4B heavy CDR 1(1) ----TYGII
CBH 4D heavy CDR 1(1) ----YS--
CBH 4G heavy CDR 1(1) NSAS----
CBH 5 heavy CDR 1(1) NFIS----
CBH 7 heavy CDR 1(1) NYALS---
CBH 8C heavy CDR 1(1) -SFFW---
CBH 8E heavy CDR 1(1) ----SCFTI
CBH 11 heavy CDR 1(1) ----IYS--
CBH 17 heavy CDR 1(1) GSATH---
                                Consensus(1) GHVIS

                                CDR 2
                                (1) 1      18
HCV heavy seq ID 3 CDR 2 (1) -GSISFFGTSSNSACKFQG
CBH 4B heavy CDR 2 (1) -GIVFLFDRPNYACKFQD
CBH 4D heavy CDR 2 (1) ---GIIFDRENYACKFQG
CBH 4G heavy CDR 2 (1) --IPIFATTYYAQRLOG
CBH 5 heavy CDR 2 (1) -GVVFVFGGGSYPCKFQG
CBH 7 heavy CDR 2 (1) --ETIPFGIEKYACKFQG
CBH 8C heavy CDR 2 (1) --YMSDTGNINSSLKT--
CBH 8E heavy CDR 2 (1) ---FIPIFTTNYACKFQG
CBH 11 heavy CDR 2 (1) -----IIPFTAKSQFQG
CBH 17C heavy CDR 2 (1) IRSSSHNYATEYPVSVRG
                                Consensus (1) GSISFFGTSSNSACKFQG

                                CDR 3
                                (1) 1      10      21
HCV heavy seq ID 3 CDR 3 (1) ---LFFRFCSGGNCYFGFFQC
CBH 4B heavy CDR 3 (1) ---EADIVVGGSSYFDS----
CBH 4D heavy CDR 3 (1) LSGIFGAVIIGNHYYYGMIV-
CBH 4G heavy CDR 3 (1) -ATGQGIELHGSYYYYAMIV-
CBH 5 heavy CDR 3 (1) -----FHGLSSGIYRFLDY-
CBH 7 heavy CDR 3 (1) -----RGYIYGSFFLY-
CBH 8C heavy CDR 3 (1) -----GLTAARILLYW
CBH 8E heavy CDR 3 (1) ---LWLGSRCRGGSCYSAFTI-
CBH 11 heavy CDR 3 (1) -----VEGSGIYAYFLY-
CBH 17C heavy CDR 3 (1) -----PSGLVQCIGHAFEF-
                                Consensus (1) LFFRFCSGGNCYFGFFQC

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Figure 4A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 4

		CDR 1					CDR 2	
		(1)	10	20	30	40	50	67
heavy chain seq ID 4	(1)	EVQLLES GGGVVC FGRSLRLSCAASGFTIFKTYGMHWRCAPFGKGLEWVAGISFDGSNCTYAD-SVRG						
CBH-4B	(1)	--ILVQSGAEVKKPGSSVKVSCRASGGSPGITYGITWVRCAFGQGLEWVGGIVELFLRENYAQ-KFQD						
CBH-4D	(1)	-QVCVQSGIEVKKPGSSVKVSKASGGPFN--YSWVRCAFGQGLEWVG-GII-FLRENYAQ-KFQG						
CBH-4G	(1)	QVCVQSGAEVKKPGSSVKVSKASGGIFSN--SASWVRCAFGQGLEWVG-LIFIFATTYYAQ-RLQG						
CBH-5	(1)	QVCVQSGAEVKKPGSSVKVSKATGGKPSN-FISWVRQVFGQGLEWVGGVVFVFGGGSYFQ-KFQG						
CBH-7	(1)	QVCVQSGAEVRRKPGS-SVISCKS-GGIFANNYALSWVRCAFGQGLEWVG-ETLEFGIEKYAQ-KFQG						
CBH-8C	(1)	QVCVQSGGF-LVKGSETLSLTCTVSGGSTSS--FFWVRQVFGKGLEWVGWIGMSTIGN-TNS---SLKT						
CBH-8E	(1)	-QVCVQSGAEVKKPGSSVKVSKASGGIFNSQFITWVRCAFGQGLEWVG-FIEFT-TNYAQ-KFQG						
CBH-11	(1)	QVCVQSGAEVKKPGSSVKVSKASGGNIN--IYSWVRCAFGQGLEWVG-TTEFTAKS-----CFQG						
CBH-17C	(1)	-EVQVGGGAVC---GGSLRVSCASGFVPSGSAIHWVRCAFGQGLEWVGITRSSSHNYATEYFVSVRG						
Consensus	(1)	EVQLLES GGGVVC FGRSLRLSCAASGFTIFKTYGMHWRCAPFGKGLEWVAGISFDGSNCTYAD SVRG						

		CDR 3					
		(68)	68	80	90	100	110
heavy chain seq ID 4	(67)	RFIVSRINSRDITVFLQMSSLRLEDTAVYYCATEGSPFG-SIKGRYYLENWGQGITLVTVSS					
CBH-4B	(65)	RVATADESTST-AYMELSSLRFCTAY-CAREADIVVG---GSSYFDS-----					
CBH-4D	(61)	RVIMIADESTIN-THMESGLRSELTAVYYCARDSGDFGAVTIGNHYYYGMDV-----					
CBH-4G	(64)	RVITIADETST-AYMELSSLQSDCTAIYYCKATG--QGLELHGSIYYIYAMDV-----					
CBH-5	(66)	RLITADDSR-----SYMLSGRDETAYYCAREHGD-----SSGIYRRPLDY-----					
CBH-7	(64)	RVITIADESIN---LMDSSLRSEES--AYCARG-----YIYGSPFDY-----					
CBH-8C	(61)	RVITDTSKQFS-----LKNVTAADTAVYYCARG-----LTAARLLDYW-----					
CBH-8E	(64)	RLITIADESTST-GYMELSSLRSELTAVYYCARDWLGSCR---GGSCYSAFDI-----					
CBH-11	(60)	RVITADKSTGD---YMSSLRSDDTAVYYCARVFGS-----GTAYFDY-----					
CBH-17C	(63)	RFTISRDSRT---AYLQMSRTEDTALYCIIFSGLVG---QLGHAFEF-----					
Consensus	(68)	RFIVSRINSRDITVFLQMSSLRLEDTAVYYCATEGSPFG SIKGRYYLENWGQGITLVTVSS					

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 4B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 4

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                                CDR 1
                                (1) 1      5
HCV heavy seq ID 4 CDR 1(1) TYGMH
CBH 4B heavy CDR 1(1) TYGIT
CBH 4D heavy CDR 1(1) -YS--
CBH 4G heavy CDR 1(1) NSAS-
CBH 5 heavy CDR 1(1) NFIS-
CBH 7 heavy CDR 1(1) NYALS
CBH 8C heavy CDR 1(1) SFFW-
CBH 8E heavy CDR 1(1) SQPIT
CBH 11 heavy CDR 1(1) IYS--
CBH 17 heavy CDR 1(1) GSATH
                                Consensus (1) TYGMH

                                CDR 2
                                (1) 1      18
HCV heavy seq ID 4 CDR 2 (1) -GISFDGSNCYYADSVKG
CBH 4B heavy CDR 2 (1) -GIVFLEDRFNYACKFQD
CBH 4D heavy CDR 2 (1) ---GIIFEDRFNYACKFQG
CBH 4G heavy CDR 2 (1) --LIIFEFATTYYACRLQG
CBH 5 heavy CDR 2 (1) -GVVPVFGGGSYPCKFQG
CBH 7 heavy CDR 2 (1) --ETIFFGTIEKYACKFQG
CBH 8C heavy CDR 2 (1) --YMSCTGNINSSLKT--
CBH 8E heavy CDR 2 (1) ---FIPIFTTINYACKFQG
CBH 11 heavy CDR 2 (1) -----IIFFIAKSQFQG
CBH 17C heavy CDR 2 (1) IRSSSHNYATEYFVSVRG
                                Consensus (1) GISFDGSNCYYADSVKG

                                CDR 3
                                (1) 1      10      20
HCV heavy seq ID 4 CDR 3 (1) -EGSFFGSIKGRYYLEN---
CBH 4B heavy CDR3 (1) ----EALIVVGGSSYFLS---
CBH 4D heavy CDR 3 (1) ESGLFGAVIIGNHYYYGMLV
CBH 4G heavy CDR 3 (1) -AIGQGIELHGSYYYYAMLV
CBH 5 heavy CDR 3 (1) -FHGCSSGIYRRELLY----
CBH 7 heavy CDR 3 (1) -----RGYIYGSEFLY----
CBH 8C heavy CDR 3 (1) -----GLIAARLLLYW---
CBH 8E heavy CDR 3 (1) ---DWLGSCRGGSCYSAFLI
CBH 11 heavy CDR 3 (1) -----VFGSGIYAYFLY
CBH 17C heavy CDR 3 (1) --PSGLVGCLGHAFEF----
                                Consensus (1) EGSFFGSIKGRYYLEN

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Figure 5A.
Comparison of deduced amino acid sequences
of CBHs light chain genes with ID 5

	CDR 1					CDR 2	
	(1)	10	20	30	40	59	
light chain seq ID 5	(1)	-AELTQSPGTL	SLSPGERATL	SCRASQSVSSN	--YLA	WYQORPGQAPRLLTYGASSRAT	
CBH 2 light	(1)	EIVLTQSPGTL	-LSPGERATL	SCRASQSVLG	---	YLA	WYKQKPGQAPRLLTYGVS-RAT
CBH 4 B light	(1)	--ESVTQSGTL	SLSPGERATL	SCRASQSVSST	--YVA	WYQKPGQAPR-LIYDASIRAT	
CBH 4 D light	(1)	-QSALTQPFASV	SGSPGQSITL	SCTGTSSDIGGYNFV	SWYQYPDKAFV	--VIXEVSKRPS	
CBH 4 G light	(1)	DIQMTQSPSSLSA	SVGDRVTITCRASQ	GIDN	---	FLAWYQOKPGKVPKLLTYAASSLQS	
CBH 5 light	(1)	DIQMTQSPSTLSA	SG-DRVAITCRASQ	SSWL	----	AWYQOKPGAPL--LIVKASNVQD	
CBH 7 light	(1)	DVLTQSPSSLSA	SVGDRVTITCRSQ	SISSE	----	LNWYQOKPGKAP-LLISAASSLQS	
CBH 8 C light	(1)	EIVLTQSPATL	SLSPGERATL	SCRASQSTSR	---	YLA	WYQKPGQAPRLLTYGTSNRAT
CBH 8 E light	(1)	DIQMTQSPSSLSS	VG--DVITTCRASQ	TINR	---	YLNWYQOKPGKAPKLLTYAASSLQS	
CBH 11 light	(1)	DIQMTQSPSTL	-SSVGDRTITCRAS	QINL	---	WLA	WYQOP--KAPELLTYKTSTSES
CBH 17 light	(1)	--SYVLTQTFV	SVAPGKTARITCRE	PNIGINS	---	VHW	FQORPGQAPVSTIYDDR--PS
Consensus	(1)	AELTQSPGTL	SLSPGERATL	SCRASQSVSSN		YLA	WYQORPGQAPRLLTYGASSRAT

	CDR 3						
	(60)	60	70	80	90	100	112
light chain seq ID 5	(57)	GIPDRFSGSGSGID	FTLTISRLEPEDFA	VYYCQLYG	--NSRWTFGQ	GKVEIK	
CBH 2 light	(55)	GIPDRFSGSGSGID	FTLTISRLEPEDFA	-YYCQQYG	--TSPFTFG	-----	
CBH 4 B light	(55)	GVELDRFSGGSGID	FTLTISRLEPEDFA	VYYCQQYG	---	GSPFFGG	-----
CBH 4 D light	(57)	GVSNRFSAS-SGNTA	SLTISGLCAEDEAD	YYCSSYTNITPV	IFGG	-----	
CBH 4 G light	(57)	GVPSRFSGSGSGID	FTLTISSLQPELVAT	YYCQYN	--SAPFTFGP	-----	
CBH 5 light	(52)	GV---	SRPSGGSGITFTLTIS	-LQPDDEFATYYC	QYN--NFSGITFGQ	-----	
CBH 7 light	(55)	GV-SRPSGGSGITFT	LTISSLQPEDEFAT	YYCQSY	--SPLLTFGG	-----	
CBH 8 C light	(57)	GIPARFSGSGSGID	FTLTISNLEPEDFA	VYYCQQR	SNWPPALTFGG	-----	
CBH 8 E light	(55)	GV-SRPSGGSGIDFT	LTISSLQPDFAVYY	CQQSFSTSAMYTFGQ	-----		
CBH 11 light	(54)	GVPSRPSGS-GSTFT	LTISSLQPDFAVYY	CQHYS	--SSSWTFGQ	-----	
CBH 17 light	(53)	GIPERFGSA-SGDTAT	LTISRVEVGDEADY	SCQVWNNNNH	RGSSEL	-----	
Consensus	(60)	GIPDRFSGSGSGID	FTLTISRLEPEDFA	VYYCQLYG		NSRWTFGQ	GKVEIK

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 5B.
Comparison of deduced amino acid sequences
of CBHs light chain genes with ID 5

CDR 1

	(1)	<u>1</u>	14
light chain seq ID 5 CDR 1	(1)	-RASQSVSSNYLA-	
CBH 2 light CDR 1	(1)	-RASQRVLGYLE--	
CBH 4B light CDR 1	(1)	-RASQSVSSITYVA-	
CBH 4D light CDR 1	(1)	TGTSSDIGGYNFVS	
CBH 4G light CDR 1	(1)	-RASQGIDINFLA--	
CBH 5 light CDR 1	(1)	-RASQSSWLA----	
CBH 7 light CDR 1	(1)	--RSQSISSEFLN--	
CBH 8C light CDR 1	(1)	-RASQSISRYLE--	
CBH 8E light CDR 1	(1)	-RASQTINRYLN--	
CBH 11 light CDR 1	(1)	-RASQSINLWLA--	
CBH 17 light CDR 1	(1)	--REFNIGTINSVH-	
Consensus (1)		RASQSVSSNYLA	

CDR 2

	(1)	<u>1</u>	9
light chain seq ID 5 CDR 2	(1)	-YGASSRAT	
CBH 2 light CDR 2	(1)	---GVSRA	
CBH 4B light CDR 2	(1)	--DASIRAT	
CBH 4D light CDR 2	(1)	--EVSKRPS	
CBH 4G light CDR 2	(1)	--AASSLQS	
CBH 5 light CDR 1	(1)	RASQSSWLA	
CBH 7 light CDR 2	(1)	--AASSLQS	
CBH 8C light CDR 2	(1)	--DTSNRAT	
CBH 8E light CDR 2	(1)	--AASSLQS	
CBH 11 light CDR 2	(1)	--KTSTSES	
CBH 17 light CDR 2	(1)	---YDDRPS	
Consensus (1)		YGASSRAT	

CDR 3

	(1)	<u>1</u>	17
light chain seq ID 5 CDR 3	(1)	--QLYGNSRWT-----	
CBH 2 light CDR 3	(1)	--QQYGTSPFTFG----	
CBH 4B light CDR 3	(1)	--QQYGGSPFFGG----	
CBH 4D light CDR 3	(1)	SSYTNNITPVIFGG---	
CBH 4G light CDR 3	(1)	--QKYNAPFTFGP---	
CBH 5 light CDR 3	(1)	--QYNNFSGITFGQ----	
CBH 7 light CDR 3	(1)	--QQSYSPLLTFGG----	
CBH 8C light CDR 3	(1)	QQRSNWPPALTFGG---	
CBH 8E light CDR 3	(1)	QQSFSTSAMVTFGQ---	
CBH 11 light CDR 3	(1)	--QHYSSSSWTFGQ----	
CBH 17 light CDR 3	(1)	--QVWNNNNHRRGSEL	
Consensus (1)		QLYGNSRWT	

Figure 6A.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 6

	CDR 1					CDR 2	
	(1)	10	20	30	40		59
light chain seq ID 6	(1)	-AELTQSPATLSLSPGERATLSCRASQ---	SVNKYLAWYQQKPGQAPRLLIYDASNRAT				
CBH 2 light	(1)	EIVLTQSPGTL-LSPGERATLSCRASQ---	RVLGYLAWYQQKPGQAPRLLIYGVSRAT				
CBH 4 B light	(1)	--ESVTQSGTILSLSPGERATLSCRASQS--	VSSTYVAVWYQQKPGQAPR-LIYDASIRAT				
CBH 4 D light	(1)	-QSALTQPASVSGSPGQSITITSCITGSSDIGGYNFVSWYQYEDKAPV--	VIYEVSKRPS				
CBH 4 G light	(1)	DIQMTQSPSSLASVGDRTITCRASQ---	GIDNFLAWYQQKPGKVPKLLIYAASSLQS				
CBH 5 light	(1)	DIQMTQSPSTLSASG-DRVAITCR-----	SQSSWLAWYQQKPGAPL--LIYKASNVQD				
CBH 7 light	(1)	DVIMTQSPSSLASVGDRTITCRS-Q---	SISSEFNWYQQKPGKAP-LIISAASSLQS				
CBH 8 C light	(1)	EIVLTQSPATLSLSPGERATLSCRASQ---	SISRYLAWYQQKPGQAPRLLIFDTSNRAT				
CBH 8 E light	(1)	DIQMTQSPSSLSSVG--DVTITCRASQ---	TINRYLNWYQQKPGKAPKLLIYAASSLQS				
CBH 11 light	(1)	DIQMTQSPSTL-SSVGDRTITCRASQ---	SINLWLAWYQQP--KAPELLTYKTSTSES				
CBH 17 light	(1)	--SYVLTQIPVSVAPGKTARITCREPN---	IGTNSVHWYQQKPGQAPVSTIYDDR--PS				
Consensus	(1)	AELTQSPATLSLSPGERATLSCRASQ	SVNKYLAWYQQKPGQAPRLLIYDASNRAT				

	CDR 3					
	(60)	60	70	80	90	112
light chain seq ID 6	(56)	GIPARFSGSGSGIDFTLTISNLEPEDFAVYYCQQR---	SDWVTFGGGTKVEIK			
CBH 2 light	(55)	GIPDRFSGSGSGIDFTLTISRLEPEDFA--YVYQQYV---	TSPFTFG-----			
CBH 4 B light	(55)	GVEDRFSGGSGIDFTLTISRLEPEDFAVYYCQYV---	GSPFFGG-----			
CBH 4 D light	(57)	GVSNRFSAS-SGNTASLTISGLQAEDEADYYCSSYTNNTITPVIKGG-----				
CBH 4 G light	(57)	GVPSRFSGSGSGIDFTLTISLQPELVATYYCQKYN--	SAPFTFGP-----			
CBH 5 light	(52)	GV---SRPSGSGSIFTLTIS-LQPDDEATYYCQYV--	NPSGTFGQ-----			
CBH 7 light	(55)	GV-SRPSGSGSGISFTLTISLQPELEATYYCQSY--	SPLLTFGG-----			
CBH 8 C light	(57)	GIPARFSGSGSGIDFTLTISNLEPEDFAVYYCQQR	SNWPPALTFGG-----			
CBH 8 E light	(55)	GV-SRPSGSGSGIDFTLTISLQPD-DEATYYCQSFSTISAMVTFGQ-----				
CBH 11 light	(54)	GVPSRPSGS-GSTIEFTLTISLQPD-DEATYYCQHYS--	SSSWTFGQ-----			
CBH 17 light	(53)	GIPERFGSA-SGDTATLTISRVEVGDEADYSQVWNTNINHRGSSEL-----				
Consensus	(60)	GIPARFSGSGSGIDFTLTISNLEPEDFAVYYCQQR	SDWVTFGGGTKVEIK			

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 6B.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 6

CDR 1
 (1) 1 14
 light chain seq ID 6 CDR 1 (1) -RASQSVNKYLA--
 CBH 2 light CDR 1 (1) -RASQRVLGYLE--
 CBH 4B light CDR 1 (1) -RASQSVSSTYVA--
 CBH 4D light CDR 1 (1) TGISSLDIGGYNEFVS
 CBH 4G light CDR 1 (1) -RASQGITNFLE--
 CBH 5 light CDR 1 (1) ---RASQSSWLE--
 CBH 7 light CDR 1 (1) --RSCSISSEFIN--
 CBH 8C light CDR 1 (1) -RASQSLSRYLA--
 CBH 8E light CDR 1 (1) -RASQTIINRYLN--
 CBH 11 light CDR 1 (1) -RASQSTINLWLE--
 CBH 17 light CDR 1 (1) --REFNIGTINSVH--
 Consensus (1) RASQSVNKYLA

CDR 2
 (1) 1 7
 light chain seq ID 6 CDR 2 (1) LASNRAT
 CBH 2 light CDR 2 (1) -GVSRAT
 CBH 4B light CDR 2 (1) LASIRAT
 CBH 4D light CDR 2 (1) EVSKRPS
 CBH 4G light CDR 2 (1) AASSLQS
 CBH 5 light CDR 2 (1) KASNVQD
 CBH 7 light CDR 2 (1) AASSLQS
 CBH 8C light CDR 2 (1) LASNRAT
 CBH 8E light CDR 2 (1) AASSLQS
 CBH 11 light CDR 2 (1) KTSISES
 CBH 17 light CDR 2 (1) -YDDRPS
 Consensus (1) LASNRAT

CDR 3
 (1) 1 17
 light chain seq ID 6 CDR 3 (1) QQRSDWVT-----
 CBH 2 light CDR 3 (1) --QQYGTSPFTFG----
 CBH 4B light CDR 3 (1) ---QQYGGSPFTFG----
 CBH 4D light CDR 3 (1) SSYTNNITFVIFGG----
 CBH 4G light CDR 3 (1) --QKYNAPFTFGP----
 CBH 5 light CDR 3 (1) --QYNNFSGTIFGQ----
 CBH 7 light CDR 3 (1) --QCSYSPILLTFGG----
 CBH 8C light CDR 3 (1) QQRSNWPPALTFGG----
 CBH 8E light CDR 3 (1) QCSFSTSAMVTFGQ----
 CBH 11 light CDR 3 (1) --QHYSSSSWIFGQ----
 CBH 17 light CDR 3 (1) --QVNNNTNNHRGSSEL
 Consensus (1) QQRSDWVT

Figure 7A.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 7

	CDR 1					CDR 2
	(1) 1	10	20	30	40	58
light chain seq ID 7	(1)	-AELTQSPGTL	SLSPGERATL	SCGASQSVRSNY	-LAWYQOKPGQAPRL	LIYGVSSRAT
CBH 2 light	(1)	EIVLTQSPGTL	-LSPGERATL	SCRASQSVLSG	-YLAWYQOKPGQAPRL	LIYGVSS-RAT
CBH 4 B light	(1)	--ESVTQSGTL	SLSPGERATL	SCRASQSVSSTY	-VAWYQOKPGQAP	-RLIYDASIRAT
CBH 4 D light	(1)	-QSALTQEPASV	SGSPGQSITIS	CTGTSSDIGGYNFV	SWYQYDPKAP	-VVIYEVSKRPS
CBH 4 G light	(1)	DIQMTQSPSSLS	ASVGDVITITCR	ASQGITD-N-F	-LAWYQOKPGKVEK	LLIYAASSLQS
CBH 5 light	(1)	DIQMTQSPSTLS	ASG-DRVAITCR	ASQSSWL---	-AWYQOKPGAPL	--LTIKASNVQD
CBH 7 light	(1)	DVLTMTQSPSSLS	ASVGDVITISCR	SQSSSF---	-LNWYQOKPGKAP	-LLISAASSLQS
CBH 8 C light	(1)	EIVLTQSPATLS	LSLSPGERATL	SCRASQSSIR	-Y-LAWYQOKPGQAPRL	LIYDTSNRAT
CBH 8 E light	(1)	DIQMTQSPSSLS	SVG--DVITITCR	ASQITINR-Y	-LNWYQOKPGKAP	LLIYAASSLQS
CBH 11 light	(1)	DIQMTQSPSTL	-SSVGDVITITCR	ASQISINL--	-WLAWYQQP--	-KAPELLITYKTSTSES
CBH 17 light	(1)	--SYVLTQTPV	SVAPGKTARIT	CREPNIGTN--	-SVHWFOQRPGQAPV	STIYDDR--PS
Consensus	(1)	AELTQSPGTL	SLSPGERATL	SCGASQSVRSNY	LAWYQOKPGQAPRL	LIYGVSSRAT

	CDR 3				
	(59) 59	70	80	90	109
light chain seq ID 7	(57)	GIFLRFSGSGSG	ILFILTIISRL	EEFELFAVYYCCQY	GSSFRIFGQGKLEIK
CBH 2 light	(55)	GIFLRFSGSGSG	ILFILTIISRL	EEFELFAVYYCCQY	GTSFFIFG-----
CBH 4 B light	(55)	GVEFLRFSGGG	SGILFILTIISRL	EEFELFAVYYCCQY	GGSFFIFG-----
CBH 4 D light	(57)	GVSINR-FSASS	GNIASLTIISGL	CAELEALYYCSSY	INNITFVIFGG----
CBH 4 G light	(57)	GVESRFSGSGS	GIDFILTIISSL	CFELVATYYCCKY	NSAFFIFGF-----
CBH 5 light	(52)	GV--S-RFSGG	SGIFILTIIS-	LQELDFATYYCCY	NNFSGIFGQ-----
CBH 7 light	(55)	GV-SRFSGSGS	GISFILTIISSL	CFELFATYYCCQ	--SYSELLIFGG----
CBH 8 C light	(57)	GIFARFSGSGS	GIDFILTIISNL	EEFELFAVYYCC	CRSNWFEALIFGG----
CBH 8 E light	(55)	GV-SRFSGSGS	GIDFILTIISSL	CF-DFATYYCCQ	SFISAMYTFGQ----
CBH 11 light	(54)	GVESRFSGSGS	-TEFILTIISSL	CF-DFATYYCCHY	SSSSWIFGQ-----
CBH 17 light	(53)	GIFER-FGSASG	DIAILTIISRV	EVGDEALYSCQV	NNNINHRGSSSEL----
Consensus	(59)	GIFLRFSGSGS	GIDFILTIISRL	EEFELFAVYYCCQY	GSSFRIFGQGKLEIK

Note:

Identical sequence: yellow background and red foreground.
 Conservative sequence: light green background and blue foreground

Figure 7B.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 7

CDR 1

	(1)	<u>1</u>	14
light chain seq ID 7 CDR 1	(1)	GASQSVRSNYLA---	
CBH 2 light CDR 1	(1)	-RASQRLVGLA---	
CBH 4B light CDR 1	(1)	RASQSVSSITYA---	
CBH 4D light CDR 1	(1)	TGTSSDIGGYNFVS	
CBH 4G light CDR 1	(1)	-RASQGIDNFLA---	
CBH 5 light CDR 1	(1)	---RASQSSWLA---	
CBH 7 light CDR 1	(1)	--RSQSLSSFIN---	
CBH 8C light CDR 1	(1)	-RASQSISRNYLA---	
CBH 8E light CDR 1	(1)	-RASQTINRYIN---	
CBH 11 light CDR 1	(1)	-RASQSINLWLA---	
CBH 17 light CDR 1	(1)	--REFNIGTNSVH-	
Consensus	(1)	GASQSVRSNYLA	

CDR 2

	(1)	<u>1</u>	7
light chain seq ID 7 CDR 2	(1)	GVSSRAT	
CBH 2 light CDR 2	(1)	-GVSRAT	
CBH 4B light CDR 2	(1)	DASIRAT	
CBH 4D light CDR 2	(1)	EVSKRPS	
CBH 4G light CDR 2	(1)	AASSLQS	
CBH 5 light CDR 2	(1)	KASNVQD	
CBH 7 light CDR 2	(1)	AASSLQS	
CBH 8C light CDR 2	(1)	DTSNRAT	
CBH 8E light CDR 2	(1)	AASSLQS	
CBH 11 light CDR 2	(1)	KTSTSES	
CBH 17 light CDR 2	(1)	-YDLRPS	
Consensus	(1)	GVSSRAT	

CDR 3

	(1)	<u>1</u>	15
light chain seq ID 7 CDR 3	(1)	QCYGSSERT-----	
CBH 2 light CDR 3	(1)	QCYGISPFIFG----	
CBH 4B light CDR 3	(1)	QCYGGSFFFGG----	
CBH 4D light CDR 3	(1)	SSYINNITFVIFGG-	
CBH 4G light CDR 3	(1)	--CKYNSAPFTFGF-	
CBH 5 light CDR 3	(1)	--CYNNFSGIFGQ-	
CBH 7 light CDR 3	(1)	--QCSYSPLLIFGG-	
CBH 8C light CDR 3	(1)	QCRSNWFPALIFGG-	
CBH 8E light CDR 3	(1)	QCSFTISAMYTFGQ-	
CBH 11 light CDR 3	(1)	--CHYSSSSWIFGQ-	
CBH 17 light CDR 3	(1)	QVWNNINHRGSSEL	
Consensus	(1)	QCYGSSERT	

Figure 8A.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 8

		CDR 1					CDR 2	
	(1)	1	10	20	30	40	59	
light chain seq ID 8	(1)	-AELTQSPATLSVSPGERASLSCRASQ---SVGNNLAWYQOKPGQAPRLITYGGNIRAT						
CBH 2 light	(1)	EIVLTQSPGTL-LSPGERATLSCRASQ---RVLGYLAWYKQKPGQAPRLITYGVS-RAT						
CBH 4 B light	(1)	--ESVTQSGTILSLSPGERATLSCRASQS--VSSTYVAWYQOKPGQAPR-LIYDASIRAT						
CBH 4 D light	(1)	-QSALTQSPASVSGSPGQSITITSCGTSSDIGGYNFVSWYQYPDKAPV--VIYEVSKRPS						
CBH 4 G light	(1)	DIQMTQSPSSLSASVGDEVITTCRASQ---GIDNPLAWYQOKPGKVPKLLIYAASSLQS						
CBH 5 light	(1)	DIQMTQSPSTLSASG-DRVATTCRA----SQSSWLAWYQOKPGAFLL--LYKASNVQD						
CBH 7 light	(1)	DVIMTQSPSSLSASVGDRVTISCRS-Q---SISSTFNWYQOKPGKAP-LLISAASSLQS						
CBH 8 C light	(1)	EIVLTQSPATLSLSPGERATLSCRASQ---SISRYLAWYQOKPGQAPRLITFDTSNRAT						
CBH 8 E light	(1)	DIQMTQSPSSLSVG--DVITTCRASQ---TINRYLNWYQOKPGKAPKLLIYAASSLQS						
CBH 11 light	(1)	DIQMTQSPSTL-SSVGDEVITTCRASQ---SINLWLAWYQOP--KAFELLYKTSTSES						
CBH 17 light	(1)	--SYVLTQTPVSVAPGKTARITCREPN--IGTNSVHWFOQRPGQAPVSIYYDDR--PS						
Consensus	(1)	AELTQSPATLSVSPGERASLSCRASQ SVGNNLAWYQOKPGQAPRLITYGGNIRAT						

		CDR 3									
	(60)	60	70	80	90	100	110				
light chain seq ID 8	(56)	GIFLRFSGSGSGTEFILTISSLCSEIFAIVYFCCHYSTIWELTFGGCIKVEFK									
CBH 2 light	(55)	GIFLRFSGSGSGTDFILTISSRIEFEDFA-YYCCYXGISFFTEG-----									
CBH 4 B light	(55)	GVFLRFSGGGSGTDFILTISSRIEFEDFAVYYCCYGGSEFFEGG-----									
CBH 4 D light	(57)	GVSNR-FSASSENTIASLTISGLCAFEALFYCCSYINNITFVIFGG-----									
CBH 4 G light	(57)	GVFSRFSGSGSGTDFILTISSLCPELVATYYCCYNSAFFTEGF-----									
CBH 5 light	(52)	GV--S-RFSGSGTDFILTISSLCPELFATYYCCYNNFSGIFGQ-----									
CBH 7 light	(55)	GV-SRFSGSGSGTDFILTISSLCPELFATYYCCYSSELTIFGG-----									
CBH 8 C light	(57)	GIFARFSGSGSGTDFILTISSNLEEFEDFAVYYCCCRSNWFEALTFGG-----									
CBH 8 E light	(55)	GV-SRFSGSGSGTDFILTISSLCF-LEATYYCCCFSTISAMYIFGQ-----									
CBH 11 light	(54)	GVFSRFSGSGS-TEFILTISSLCF-LEATYYCCFYSSSSWIFGQ-----									
CBH 17 light	(53)	GIFER-FGSASGLIATLTISRVEVGLEALYSCQVWNTNNHRGSSEL----									
Consensus	(60)	GIFLRFSGSGSGTEFILTISSLCSEIFAIVYFCCHYSTIWELTFGGCIKVEFK									

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 8B.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 8

CDR 1
 (1) 1 14
 light chain seq ID 8 CDR 1 (1) -RASQSVGNLA--
 CBH 2 light CDR 1 (1) -RASQVIGYLA--
 CBH 4B light CDR 1 (1) -RASQSVSSTIYA--
 CBH 4D light CDR 1 (1) TGISSDIGGYNFVS
 CBH 4G light CDR 1 (1) -RASQGIENFLA--
 CBH 5 light CDR 1 (1) -RASQSSWLA----
 CBH 7 light CDR 1 (1) --RSQSISSFIN--
 CBH 8C light CDR 1 (1) -RASQSIISRYLA--
 CBH 8E light CDR 1 (1) -RASQIINRYIN--
 CBH 11 light CDR 1 (1) -RASQSIINLWLA--
 CBH 17 light CDR 1 (1) --REFNIGINSVH-
 Consensus (1) RASQSVGNLA

CDR 2
 (1) 1 7
 light chain seq ID 8 CDR 2 (1) GGNIRAT
 CBH 2 light CDR 2 (1) -GVSRAT
 CBH 4B light CDR 2 (1) DASIRAT
 CBH 4D light CDR 2 (1) EVSKRPS
 CBH 4G light CDR 2 (1) AASSLQS
 CBH 5 light CDR 2 (1) KASNVQD
 CBH 7 light CDR 2 (1) AASSLQS
 CBH 8C light CDR 2 (1) DTSNRAT
 CBH 8E light CDR 2 (1) AASSLQS
 CBH 11 light CDR 2 (1) KTSTSES
 CBH 17 light CDR 2 (1) -YDDRPS
 Consensus (1) GGNIRAT

CDR 3
 (1) 1 15
 light chain seq ID 8 CDR 3 (1) CHYSTWFLT-----
 CBH 2 light CDR 3 (1) CCYGISFFTFG----
 CBH 4B light CDR 3 (1) CCYGGSFFFGG----
 CBH 4D light CDR 3 (1) SSYINNITFVIFGG-
 CBH 4G light CDR 3 (1) CKYNSAFFTFGF---
 CBH 5 light CDR 3 (1) CYNNFSGTFGQ---
 CBH 7 light CDR 3 (1) --CCSYSPLLTFGG-
 CBH 8C light CDR 3 (1) CCRSNWFPALTFFGG-
 CBH 8E light CDR 3 (1) CCSTISAMYTFGQ-
 CBH 11 light CDR 3 (1) CHYSSSSWIFGQ---
 CBH 17 light CDR 3 (1) CVMNNTNNHRGSSEL
 Consensus (1) CHYSTWFLT

Figure 9A.
Comparison of deduced amino acid sequences
of ID's heavy chain genes

CDR 2

(1) 1 10 20 30 40 50 60 71

heavy seq ID 1 (1) EVCLLEQSGAEVRKPGSSVKVSKASGGITFSGHVTITWVRCAFGQGLEWMGESIFPGSANYACNYACKFRD

heavy seq ID 2 (1) EVCLLEQSGAEVKKPGSSVKVSCQVFGDTFSRYTIQMLRCAFGQGFPEWMGNITFVYNIP---N-YACKRFGQ

heavy seq ID 3 (1) EVCLLEQSGAEVKKPGSSVKVSKASGGITFSGHVTITWVRCAFGQGLEWMGGSTISFFGTISN---SACKRFGQ

heavy seq ID 4 (1) EVCLLE-SGGGVVQPGRLRLSCAASGTFIKTYGMHWVRCAFGGLEWVAGTISFDGSGNY---YADSVKRG

Consensus (1) EVCLLEQSGAEVRKPGSSVKVSKASGGITFSGHVTITWVRCAFGQGLEWMGESIFPGSANYACNYACKFRD

CDR 3

(72) 72 80 90 100 110 120 132

heavy seq ID 1 (72) RVSTILAEESTISFTIELSNLRSDITAVYYCARLPFYCSAGRCYGFPGQNGGGTILVTVSS

heavy seq ID 2 (68) RLSTIALDSTAYMELSSLRSEITAVYFCARVVIENAIR-ETMGVYFDYWGQGITLVTVSS

heavy seq ID 3 (68) RVSTIALDESATAYMELSSLRSEITATYYCAKDFERFCSGGNCYGFGFQNGWGGGITLVTVSS

heavy seq ID 4 (72) RFTVSRIRNSRDTVFLQMSSLPLDEATYYCATGSSPFGSI--KRGYYLENWGQGITLVTVSS

Consensus (72) RVSTILAEESTISFTIELSNLRSDITAVYYCARLPFYCSAGRCYGFPGQNGGGTILVTVSS

CDR region comparison between different IDs

		CDR 1
	(1) <u>1</u>	6
HCV heavy seq ID 1	CDR 1(1)	GHVTT-
HCV heavy seq ID 2	CDR 1(1)	-RYTITQ
HCV heavy seq ID 3	CDR 1(1)	GHVIS-
HCV heavy seq ID 4	CDR 1(1)	-TYGMH
	Consensus (1)	GHVTT
		CDR 2
	(1) <u>1</u>	10 21
HCV heavy seq ID 1	CDR 2	(1) ESIPIFGSANYAQNYAQKFRD
HCV heavy seq ID 2	CDR 2	(1) NIIFVYINTPNYAQKFQ-----
HCV heavy seq ID 3	CDR 2	(1) GSISFFGTSNSAQKFQ-----
HCV heavy seq ID 4	CDR 2	(1) -GISFDGSINQYYADSVK-----
	Consensus	(1) ESIPIFGSANYAQNYAQKFRD
		CDR 3
	(1) <u>1</u>	19
HCV heavy seq ID 1	CDR 3	(1) DPFPRYCSAGRCYPGFQQ-
HCV heavy seq ID 2	CDR 3	(1) --VVIFENAIRHTMGYYFDY
HCV heavy seq ID 3	CDR 3	(1) DPFPRFCSGGNCYPGFQQ-
HCV heavy seq ID 4	CDR 3	(1) ---EGSPFGSIKGRYYLEN
	Consensus	(1) DPFPRYCSAGRCYPGFQQ

Note:

Figure 9B.
Comparison of deduced amino acid sequences
of ID's light chain genes

	CDR 1					CDR 2	
	(1)	1	10	20	30	40	56
light chain seq ID 5	(1)	AELTQSPGTLTSLSPGERATLSCRASQSVSSNYLAWYCCRFQCAFRLLITYGASSRAT					
light chain seq ID 7	(1)	AELTQSPGTLTSLSPGERATLSCGASQSVRSNYLAWYCCRFQCAFRLLITYGVSSRAT					
light chain seq ID 6	(1)	AELTQSPATLTLSPGERATLSCRASQSVN-KYLAWYCCRFQCAFRLLITYDASNRAT					
light chain seq ID 8	(1)	AELTQSPATLSVSPGERASLSCRASQSVG-MNLAWYCCRFQCAFRLLITYGGNIRAT					
Consensus	(1)	AELTQSPGTLTSLSPGERATLSCRASQSVSSNYLAWYCCRFQCAFRLLITYGASSRAT					

	CDR 3					
	(57)	57	70	80	90	107
light chain seq ID 5	(57)	GIFLRFSGSGSGTDFLTITSRLEFELFAVYYCCLYGNSRWTFQGCTKVEIK				
light chain seq ID 7	(57)	GIFLRFSGSGSGTDFLTITSRLEFELFAVYYCCQYGSSEFTFCGCTKLEIK				
light chain seq ID 6	(56)	GIFARFSGSGSGTDFLTITSNLEFELFAVYYCCQR-SDWVTFQGCTKVEIK				
light chain seq ID 8	(56)	GIFLRFSGSGSGTDFLTITSSLQSEDFAVYFCCHYSTWELTFQGCTKVEIK				
Consensus	(57)	GIFLRFSGSGSGTDFLTITSRLEFELFAVYYCCLYGNSRWTFQGCTKVEIK				

CDR region comparison between different IDs

	CDR 1	
	(1)	12
light chain seq ID 5 CDR 1	(1)	RASQSVSSNYLA
light chain seq ID 7 CDR 1	(1)	GASQSVRSNYLA
light chain seq ID 6 CDR 1	(1)	RASQSVNKYLA-
light chain seq ID 8 CDR 1	(1)	RASQSVGNILA-
Consensus	(1)	RASQSVSSNYLA

	CDR 2	
	(1)	8
light chain seq ID 5 CDR 2	(1)	YGASSRAT
light chain seq ID 6 CDR 2	(1)	-DASNRAT
light chain seq ID 7 CDR 2	(1)	-GVSSRAT
light chain seq ID 8 CDR 2	(1)	-GGNIRAT
Consensus	(1)	YGASSRAT

	CDR 3	
	(1)	11
light chain seq ID 5 CDR 3	(1)	CLYGNSRWI--
light chain seq ID 6 CDR 3	(1)	--CCRSCWVI-
light chain seq ID 7 CDR 3	(1)	CCYGSSEFT--
light chain seq ID 8 CDR 3	(1)	--CHYSTWELT
Consensus	(1)	CLYGNSRWI

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Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

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NO. 755

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Identical sequence: yellow background and red foreground.
Conservative sequence: light green background and blue foreground